AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A device for analyzing a thickness of tissue, said device comprising:

a light generating means;

a probe with an extension;

at least one fiber bundle arranged in said extension, for conveying light from said light generating means to ~~illuminate~~ the surface of said tissue;

a light detecting means; and

a signal processor configured to determine said thickness of said tissue based on data acquired by said light detecting means, wherein:

said light generating means generates light of known intensity, of a plurality of wavelengths,

said extension is designed for conveying light back-scattered from said tissue to said light detecting means,

said light detecting means is designed for measuring the intensity of light back-scattered from said tissue for said plurality of wavelengths, components of said tissue are cartilage and subchondral bone, and

said signal processor is arranged to determine ~~the~~ cartilage thickness based on ~~light absorption~~ optical properties of the cartilage and underlying subchondral bone at said plurality of wavelengths ~~and based on the intensity of the back-scattered light at said plurality of wavelengths~~.

2-3. (Cancelled)

4. (currently amended) The device according to claim 1 wherein said light generating means includes means for generating light of at least two wavelengths including reference light and measurement light, where said reference light and measurement light are conveyed through said fiber bundle in said extension for illumination of said tissue surface, where said light detecting means is designed to measure intensities of back-scattered parts of said reference light and measurement light, and where said signal processor ~~in said control apparatus~~ includes means for comparing said measured intensities of back-scattered reference light and measurement light in order to determine the thickness of said tissue.

5. (previously presented) The device according to claim 4 wherein said light detecting means is a two-dimensional intensity detector.

6. (previously presented) The device in accordance with claim 4 where said light generating means is a white light

source for visualization of said tissue, and said reference light and measurement light are extracted from said white light source by a material selected to pass said reference light and measurement light.

7. (previously presented) The device in accordance with claim 4 comprising means for multiplexing said reference light and measurement light emitted from said light generating means.

8. (currently amended) The device according to claim 1 where said light generating means is a light source generating white light, where said white light is conveyed through said fiber bundle in said extension for illumination of said tissue, where said light detecting means is designed to measure intensities of back-scattered parts of said white light for at least two wavelengths, and where said signal processor ~~in said control apparatus~~ includes means for comparing said measured intensities at the wavelengths of said reference light and measurement light in order to determine the thickness of said tissue.

9. (previously presented) The device according to claim 8 wherein said light detecting means is a two-dimensional intensity detector.

10. (previously presented) The device in accordance with claim 1 wherein said light generating means includes means for generating light of at least two wavelengths including reference light and measurement light, where said reference light and measurement light are conveyed through said fiber bundle in said extension for illumination of said tissue, and where said extension is designed for conveying light back-scattered from said tissue to an eye-piece for visual inspection.

11. (previously presented) The device according to claim 10 where said light generating means is a white light source for visualization of said tissue, and said reference light and measurement light are extracted from said white light source by a material selected to pass said reference light and measurement light.

12. (previously presented) The device in accordance with claim 10 comprising means for multiplexing said reference light and measurement light emitted from said light generating means.

13. (previously presented) The device in accordance with claim 4 where the wavelength of said reference light is within a wavelength region where similar absorption between the components of said tissue is seen.

14. (currently amended) The device according to claim 13 where ~~said tissue components are cartilage and bone and~~ the

wavelength of said reference light is within the 600-800 nm wavelength range.

15. (previously presented) The device accordance with claim 4 where the wavelength of said measurement light is within a wavelength region where differences in absorption between the components of said tissue are seen.

16. (currently amended) The device according to claim 15 where the wavelength of said measurement light is within a wavelength region corresponding to a hemoglobin absorption peak, ~~preferably~~ in the vicinity of 425, 542 or 576 nm, or within a wavelength region with high water absorption, ~~preferably~~ in the near- infrared region.

17-30. (Cancelled)

31. (currently amended) A method for analyzing tissue thickness, said tissue including cartilage and bone, said method comprising:

measuring light intensity of a reference light back-scattered from cartilage covered bone;

measuring light intensity of a measurement light back-scattered from said cartilage covered bone;

determining a relationship between the intensity of the back-scattered reference light and the intensity of the back-scattered measurement light; and

deriving cartilage thickness based on the determined relationship and based on ~~light absorption and light scattering~~ optical properties of the cartilage and underlying bone.

32. (previously presented) The device in accordance with claim 8, where the wavelength of said reference light is within a wavelength region where similar absorption between the components of said tissue is seen.

33. (previously presented) The device in accordance with claim 10, where the wavelength of said reference light is within a wavelength region where similar absorption between the components of said tissue is seen.

34. (previously presented) The device accordance with claim 8, where the wavelength of said measurement light is within a wavelength region where differences in absorption between the components of said tissue are seen.

35. (currently amended) The device accordance with claim ~~4~~ 10 where the wavelength of said measurement light is within a wavelength region where differences in absorption between the components of said tissue are seen.

36. (new) The device according to claim 32 where the wavelength of said reference light is within the 600-800 nm wavelength range.

37. (new) The device according to claim 33 where the wavelength of said measurement light is within a wavelength region corresponding to a hemoglobin absorption peak, in the vicinity of 425, 542 or 576 nm, or within a wavelength region with high water absorption, in the near- infrared region.

38. (new) The device according to claim 34 where the wavelength of said reference light is within the 600-800 nm wavelength range.

39. (new) The device according to claim 35 where the wavelength of said measurement light is within a wavelength region corresponding to a hemoglobin absorption peak, in the vicinity of 425, 542 or 576 nm, or within a wavelength region with high water absorption, in the near- infrared region.